UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

IN RE: GOOGLE DIGITAL ADVERTISING ANTITRUST LITIGATION	No. 1:21-md-3010 (PKC)

This Document Relates to:

IN RE: GOOGLE DIGITAL ADVERTISING ANTITRUST LITIGATION	No. 1:21-CV-07001 (PKC)

DEFENDANTS GOOGLE LLC AND ALPHABET INC.'S MEMORANDUM OF LAW IN SUPPORT OF THEIR MOTION TO EXCLUDE THE EXPERT TESTIMONY OF DR. J. DOUGLAS ZONA AND DR. HAL SINGER

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I.   INTRODUCTION

In support of its motion for class certification, Plaintiff relies on the opinions of its two economic experts: J. Douglas Zona and Hal J. Singer. Both experts' opinions on classwide antitrust impact and damages should be excluded as unreliable under *Daubert*.

Dr. Zona. Across Dr. Zona's two reports, he puts forward three different models, each purporting to estimate how changes in Google's market share in his ad exchange market affect prices charged to Google Ads advertisers sourcing impressions from AdX, third-party exchanges, and AdSense. Using these models, he concludes that Google's Bernanke and Unified Pricing Rules optimizations exerted anticompetitive effects in his proposed market for ad exchanges, impacted *all* Google Ads advertisers, and resulted in damages of up to $790 million. Dr. Zona's opinions are founded on a fundamentally flawed methodology and baseless assumptions, and his testimony should be excluded under *Daubert*.

First, the entirety of Dr. Zona's impact and damages opinions rely on his "assembly" of what he refers to as the "AdX win rate" attributable to Buy-Side DRS, Bernanke, Global Bernanke, and UPR. This "win rate" is supposed to represent the amount by which the optimizations caused AdX's market share to increase. But Dr. Zona gleaned these "win rates" from just four documents, none of which actually say anything about his "AdX win rate." His assembly of this so-called "AdX win rate" was not formed through any reliable method or principles and was performed in a speculative and inconsistent manner that renders his conclusions inadmissible *ipse dixit*.

Second, Dr. Zona also offers testimony regarding common impact and damages to a set of proposed class members whose purchases comprise over fifty percent of total impressions purchased by the proposed class—Google Ads advertisers who sourced impressions via AdSense—despite not being subject to any of the optimizations at issue. Dr. Zona offers no valid

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theory as to how AdSense transactions could have been affected, and his inclusion of AdSense transactions in his impact and damages models lack any methodological basis. Dr. Zona's opinions that AdSense advertisers were impacted or suffered damages should be excluded, as should his reply model that combines observations from AdSense and AdX advertisers.

Dr. Singer. Across two distinct methods, "Indirect" and "Direct," Dr. Singer attempts to demonstrate classwide antitrust impact and damages related to UPR. But Dr. Singer applies unreliable and shifting methodologies that are so flawed they do not provide any evidence of classwide impact from the challenged conduct. His opinions on classwide antitrust impact and damages stemming from Google's introduction of UPR should accordingly be excluded.

Dr. Singer's "Indirect Method" does not account for key factors other than UPR that caused an increase in impressions on Google's ad exchange, including the major shift to a Unified First Price Auction that took place *at the exact same time* that Google introduced UPR. By failing to control for these factors, Dr. Singer's model erroneously attributes all impression lifts to UPR even if they were caused by something else. Moreover, Dr. Singer's entire Indirect Method rests on the incorrect assumption that Google considered lowering its revenue share as an alternative to UPR—there is no evidence that this was ever considered.

Dr. Singer's alternative method, his "Direct Method," is equally unreliable. In his deposition, Dr. Singer acknowledged that the "Difference in Difference" model that underpins his Direct Method in his initial report does not demonstrate classwide impact or damages. The new model that Dr. Singer introduced in his reply report fares no better as it is founded on an incorrect assumption and is transparently reverse-engineered to reach the desired conclusion that UPR harmed advertisers on a classwide basis.

Even if either one of Dr. Singer's methods were reliable, their outputs would be irrelevant because Dr. Singer's opinions involve a putative class of advertisers different from the one Plaintiff seeks to certify. Dr. Singer's opinions pertain only to a subset of advertisers in the class for only a portion of the asserted class period.

II.   LEGAL STANDARD

"[C]ourts in the Second Circuit regularly 'subject expert testimony to *Daubert*'s rigorous standards insofar as that testimony is relevant to the Rule 23 class certification analysis.'" *Scott v. Chipotle Mexican Grill, Inc.*, 315 FRD 33, 55 (S.D.N.Y. 2016). The question at the class certification stage is whether the Court may utilize the expert's report to decide whether the requisites of Rule 23 have been met. *In re LIBOR-Based Fin. Instruments Antitrust Litig.*, 299 F. Supp. 3d 430, 470-71 (S.D.N.Y. 2018) (cleaned up) (concluding that Second Circuit decisions and the majority of leading treatises support applying *Daubert* to determine whether the Court may utilize an expert's report in deciding whether the requisites of Rule 23 have been met).

The Second Circuit has distilled the *Daubert* standard of Rule 702 "down to a three-part test that requires the proponent of expert evidence to show that (1) the expert is qualified; (2) the proposed opinion is based on reliable data and methodology; and (3) the proposed testimony would be helpful to the trier of fact." *In re Keurig Green Mountain Single-Serve Coffee Antitrust Litig.*, 2025 WL 354671, at *2 (S.D.N.Y. Jan. 30, 2025) (cleaned up); *LIBOR-Based Fin. Instruments*, 299 F. Supp. 3d at 466.

To determine whether the proffered testimony has a sufficiently "reliable foundation" to permit it to be considered, the Court must undertake a "rigorous examination" of the indicia of reliability identified in Rule 702: "(1) that the testimony is grounded on sufficient facts or data; (2) that the testimony 'is the product of reliable principles and methods'; and (3) that 'the witness has

applied the principles and methods reliably to the facts of the case.'" *Amorgianos v. Nat'l R.R. Passenger Corp.*, 303 F.3d 256, 265, 267 (2d Cir. 2002) (quoting Fed. R. Evid. 702). The expert's methodology is to be assessed step-by-step, and "it is critical that an expert's analysis be reliable at every step." *Id.* at 267. "*[A]ny* step that renders the analysis unreliable under the *Daubert* factors *renders the expert's testimony inadmissible.*" *Id.* (emphasis original) (cleaned up).

The proffering party bears the burden of establishing admissibility of expert testimony by a preponderance of the evidence. *United States v. Williams*, 506 F.3d 151, 160 (2d Cir. 2007); *Keurig*, 2025 WL 354671, at *2. In assessing whether the Plaintiff meets that burden, the Court serves as the "gatekeeper" against unreliable expert testimony. *Williams*, 506 F.3d at 160. "The district court has broad discretion to carry out [its] gatekeeping function. Its inquiry is necessarily a 'flexible one,' and the types of factors that are appropriate to consider will 'depend[] upon the particular circumstances of the particular case at issue.'" *In re Pfizer, Inc. Sec. Litig.*, 819 F.3d 642, 658 (2d Cir. 2016) (quoting *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 594 (1993)).

III.   DR. J. DOUGLAS ZONA'S TESTIMONY SHOULD BE EXCLUDED.

A. BACKGROUND

Plaintiff relies on Dr. Zona's testimony throughout his motion for class certification. Mot. at 7 (competitive effects from "Bernanke" and UPR), 12-13 (typicality), 17-18 (standing), 24-28 ("common issues predominate as to antitrust injury and damages"). Although Plaintiff retained two economists and purports to rely on them both for class certification, Dr. Zona is the only one of Plaintiff's experts offering opinions as to competitive effects, common impact, and damages from all of the optimizations at issue: Buy-Side DRS, Project Bernanke, Global Bernanke, and UPR. *See id.* at 28 (describing Dr. Singer's assignment as assessing impact and damages only related to UPR). Because Buy-Side DRS, Project Bernanke, and Global Bernanke were only in

effect through September 2019, prior to UPR, *id.* at 3, 7, Dr. Zona is also the only one of Plaintiff's experts offering opinions as to competitive effects, common impact, and damages for the entire proposed class period from January 1, 2016, to the present. *See id.* at 9.

Plaintiff describes Dr. Zona's models as having three steps, which are used to determine "the extent to which impact can be shown through common evidence" and "for computing aggregate damages." *Id.* at 27. *First*, Dr. Zona purports to assemble how Google's optimizations over time impacted what he refers to as the "AdX 'win rate,'" which Plaintiff defines as the "proportion of [AdX] queries that are matched to a buyer in an auction." *Id.* at 27; *see also* Sessions Decl., Ex. 5 (Zona Dep.) 119:10-19. Dr. Zona does this by looking at just four Google documents. Sharp-Wolfson Decl., Ex. 1 (Zona Op.) ¶¶ 70 n.70, 73 n.74, 74 n.79, 87 n.97. Dr. Zona uses these four documents to then "determine[] what the win rates would have been after removing the increase in win rates owing to Bernanke and UPR." Mot. at 27. *Second*, Dr. Zona runs multiple regression models. These models seek to estimate "the effect of changes in Google's AdX market share in the exchange market on the prices charged to Google Ads' advertisers." *Id.* (quoting Sharp-Wolfson Decl., Ex. 1 (Zona Op.) ¶ 134). In his opening report, Dr. Zona ran two regressions: (1) estimating prices as cost-per-click, the cost type used by the majority of Google Ads advertisers sourcing impressions from AdSense; and (2) estimating prices as estimated cost per one-thousand impressions (eCPM), the cost type used by Google Ads advertisers sourcing impressions from AdX or third-party exchanges. *Id.*; Sharp-Wolfson Decl., Ex. 1 (Zona Op.) ¶¶ 128, 130, Tbl. 2. In his reply report, Zona combines these two regression models into a new third model, no longer distinguishing between advertisers who sourced impressions from AdSense or AdX/third-party exchanges. Sessions Decl., Ex. 5 (Zona Dep.) 205:13-17, 206:6-15. *Third*, Dr. Zona derives an overcharge by applying the relationship between changes in AdX market share

and ad prices (based on his results of these regression models) to the increase in "AdX win rate" that he attributed to each at-issue optimization, which he then uses to calculate aggregate damages. Sharp-Wolfson Decl., Ex. 1 (Zona Op.) ¶ 134). Dr. Zona's damages estimate decreased by approximately 25% from his opening to reply report. Mot. at 27-28; Sessions Decl., Ex. 5 (Zona Dep.) 112:14-25. Neither Plaintiff nor Dr. Zona has committed to any of the three models offered.

B. ARGUMENT

Dr. Zona's opinions regarding impact and damages, *see* Sharp-Wolfson Decl., Ex. 1 (Zona Op.) §§ VI.B, VII, VIII; Sharp-Wolfson Decl., Ex. 2 (Zona Reply) §§ IV, V, VI, should be excluded in their entirety because they each depend on Dr. Zona's unreliable and fundamentally flawed assembly of the "AdX win rate." In the alternative, the Court should exclude Dr. Zona's testimony regarding impact and damages to Google Ads advertisers sourcing impressions via AdSense, *see* Sharp-Wolfson Decl., Ex. 1 (Zona Op.) §§ VII, VIII; Sharp-Wolfson Decl., Ex. 2 (Zona Reply) §§ III.B, IV, V, VI, because it is irrelevant (and therefore unhelpful to the trier of fact) as well as unreliable. These opinions include the AdSense regression from Dr. Zona's initial report and the combined regression from Dr. Zona's reply report.

> **1. Dr. Zona's unreliable and arbitrary assembly of "AdX win rate" dooms the entirety of his testimony on anticompetitive effects, common impact, and damages.**

All of Dr. Zona's testimony in both his opening and reply reports regarding competitive effects, common impact, and damages is grounded in his deeply flawed assembly of a so-called "AdX win rate" from just four Google documents. Sessions Decl., Ex. 5 (Zona Dep.) 114:2-5. Dr. Zona's failure to apply a reasonable or reliable methodology at this first step of his analysis is fatal to the full scope of his testimony cited in Plaintiff's motion for class certification. *See Amorgianos*, 303 F.3d at 267; *see also Faulkner v. Nat'l Geographic Soc'y*, 576 F. Supp. 2d 609, 619 (S.D.N.Y. 2008) (when an expert's analysis "starts with an unsubstantiated assumption . . .

and proceeds by nothing more than guesses . . . each baseless step based on the preceding guess," it causes "[the expert's] opinion [to be] grounded only in assumptions, not in facts. The methodology is anything but reliable. It is not admissible."). His testimony is unreliable because (1) the "win rate" number he plucks from Google documents is unsupported by those very documents; (2) his assumption that the effect of each Google optimization on "win rate" is instantaneous, constant, and permanent is unsupported by any evidence or economic theory; (3) his assumption that there is no procompetitive effect from each optimization is unsupported and inconsistent with his own opinions; and (4) he offers no support for his methodology.

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a) Dr. Zona's assembly of an "AdX win rate" is unsupported by the documents he cites and amounts to *ipse dixit*.

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Dr. Zona's opinions depend on his singular interpretation of four Google documents. In Figures 1 and 2 of his opening report, he plots what he refers to as "Google's AdX win rate" for four[1] of Google's optimizations from January 2013 through September 2019: Buy-Side DRS, Project Bernanke, Global Bernanke, and UPR. Sharp-Wolfson Decl., Ex. 1 (Zona Op.) ¶¶ 117-120, Figures 1-2. In his report, he describes this "AdX win rate" as "the proportion of queries that are matched to a buyer in an auction" in AdX. *Id.* ¶ 67 n.64; *see also* Sessions Decl., Ex. 5 (Zona Dep.) 85:5-11. At his deposition, he stated that it is "total matches that AdX makes versus total - - over total queries that AdX saw." Sessions Decl., Ex. 5 (Zona Dep.) 119:16-19. This is supposed to be his proxy for "the effect of the various optimization programs on AdX's share in the exchange market." Sharp-Wolfson Decl., Ex. 1 (Zona Op.) ¶ 120. He cites *one* document as the source for the "AdX win rate" for each optimization. He then assumes that the increase in Google's AdX

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[1] Dr. Zona includes a win-rate assessment for sell-side DRS, but he does not attribute any impact or damages to this optimization. Dr. Zona also appears to plot a "win rate" of approximately 40% from "Dynamic Allocation and AdX 2.0" in his Figures 1 and 2. Sharp-Wolfson Decl., Ex. 1 (Zona Op.) ¶¶ 117-120, Figures 1-2. But nowhere in his report does he provide a citation for where this "win rate" comes from or sufficiently demonstrate how it is relevant to his analysis.

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win rate is immediate (*i.e.*, occurs all at once on the date that the optimization was implemented) and persists over the entire period that optimization remained active (*i.e.*, until it was replaced by another optimization). In his Figure 2, reproduced below, he plots a blue line that represents the "cumulative effect" of Google's optimizations on "AdX win rate" and a separate dotted red line as the "Baseline." The "Baseline" is some calculation of AdX's market share (a calculation that is not explained in his reports), minus the "AdX win rate" he selects for each optimization at issue.[2] This "difference between the red and blue lines depicts the anticompetitive inflation in Google's AdX volumes." *Id.* ¶ 119.

Figure 2: Google's AdX Win Rate and Google Conduct
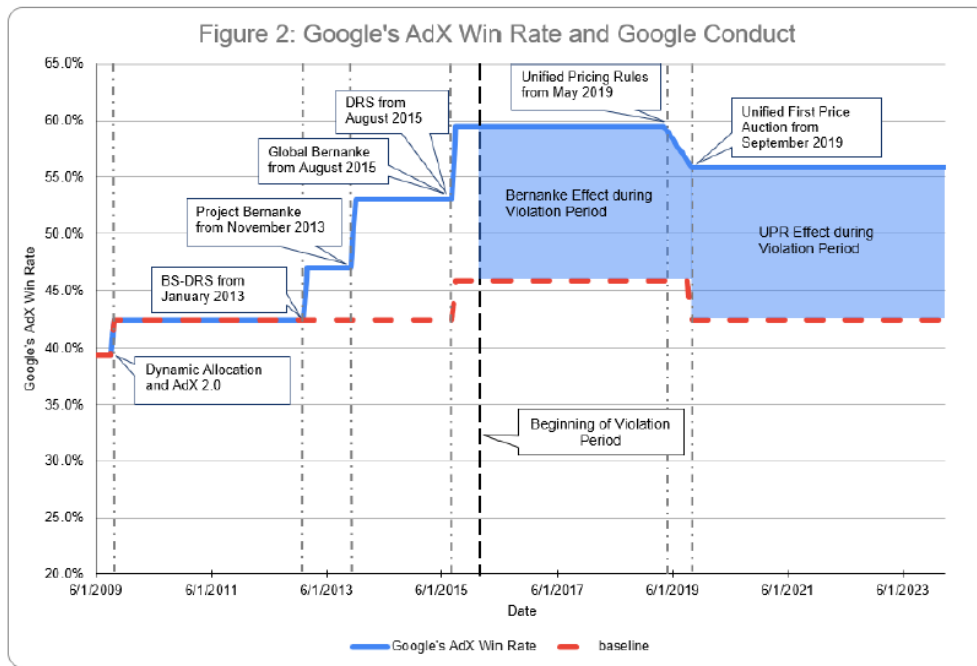
As a threshold matter, Dr. Zona does not offer *any* economic support for his definition of an "AdX win rate." None appears in his two reports, nor was he able to offer any support at his deposition. Sessions Decl., Ex. 5 (Zona Dep.) 119:4-19. While his report includes a formula for "win rate," Sharp-Wolfson Decl., Ex. 1 (Zona Op.) ¶ 67 n.64, he does not actually use this formula

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[2] Dr. Zona writes "[b]etween 2016 and mid-2022, I estimate that AdX has maintained a roughly 60 percent market share of indirectly sold open web display inventory" but does not explain how that estimate was calculated. Sharp-Wolfson Decl., Ex. 1 (Zona Op.) ¶ 94.

in his analysis, Sessions Decl., Ex. 5 (Zona Dep.) 121:10-14. Indeed, the formula is not supported by a citation in his report, and he testified that he did not fully understand what it represented. *Id.* 116:19-117:4.

Importantly, Dr. Zona never attempted to actually calculate an "AdX win rate" using the voluminous data available to him in the case. *Id.* 122:7-12. He never looked at the data available to him to check whether the numbers he plucked from four documents (or his assumptions of instantaneous and permanent effects) were accurate. And as described below, none of the documents that he cites for his "win rate" numbers actually match the "win rate" he assumes based on these documents.

Dr. Zona's assembly of his "AdX win rate" amounts to pure *ipse dixit*. *See Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997) ("[N]othing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence which is connected to existing data only by the *ipse dixit* of the expert."); *see also Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 157 (1999); *Better Holdco, Inc. v. Beeline Loans, Inc.*, 666 F. Supp. 3d 328, 365 (S.D.N.Y. 2023). The documents he cites all discuss different metrics, none of which are consistent with his proffered definition of an "AdX" win rate" and many of which are entirely unrelated to proposed class members. Even still, he misinterprets some of these documents by mixing up the numbers. There is "simply too great an analytical gap" between the "data" (*i.e.*, four documents) used by Dr. Zona and his proffered testimony. *Joiner*, 522 U.S. at 146.

When reviewing the documents cited by Dr. Zona for his assembly of an "AdX win rate," it is clear that none of them provides "the proportion of queries that are matched to a buyer in an auction" for AdX or "total matches that AdX makes versus total -- over total queries that AdX saw":

- *Buy-Side DRS.* Dr. Zona quotes a document from January 2013 for the proposition that Buy-Side DRS "enabl[ed] [Google Ads] to win 4.6% more impressions" in the AdX auction. Sessions Decl., Ex. 18 (GOOG-AT-MDL-002390899) -899; Sessions Decl., Ex. 5 (Zona Dep.) 127:17-21; Sharp-Wolfson Decl., Ex. 1 (Zona Op.) ¶ 70 n.70. This document provides no evidence of the "AdX win rate" as Dr. Zona and Plaintiff define it.[3] The amount that advertisers using Google Ads win in AdX is simply not the same thing as the overall rate at which AdX matches impressions, *see* Sessions Decl., Ex. 5 (Zona Dep.) 85:1-86:4, and Dr. Zona provided no opinion as to why it would be appropriate to conflate the two. The quotation that Dr. Zona uses provides no evidence of the "AdX win rate" he is trying to discern. His opinion regarding the win-rate increase attributable to Buy-Side DRS has no foundation.

- *Project Bernanke.* Here, Dr. Zona quotes a document from December 2013: "Bernanke results in higher revenue, publisher payout, advertiser conversion volume, and profit, increasing [Google Ads] advertiser conversion volume [by] +10.8%." Sharp-Wolfson Decl., Ex. 1 (Zona Op.) ¶ 73 (quoting Sharp-Wolfson Decl., Ex. 11 (GOOG-AT-MDL-002051655) at -655). Dr. Zona admitted at his deposition that there is no reporting of a change in "AdX win rate" in this document. Sessions Decl., Ex. 5 (Zona Dep.) 140:21-24. He also admitted that the Google Ads advertiser conversion volume figure that he uses for

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[3] As explained by Dr. Haider, and effectively conceded by Dr. Zona in his reply, he misinterprets this figure as a 4.6% win rate increase. Even if it could be classified as a "win rate," a 4.6% increase in *impressions* would only translate to a "win rate" change of 2 percentage points. Sessions Decl., Ex. 1 (Haider Rpt.) ¶ 137; Sharp-Wolfson Decl., Ex. 2 (Zona Reply) ¶ 80a. This calls his entire model into question because his damages are highly sensitive to even tiny changes in the "win rates" he uses as inputs and therefore demonstrates a high error rate. *See Daubert*, 509 U.S. at 592-94 ("[I]n the case of a particular scientific technique, the court ordinarily should consider the known or potential rate of error…"); *Nimely v. City of New York*, 414 F.3d 381, 396; *Zenith Electronics Corp. v. WH-TV Broadcasting Corp.*, 395 F.3d 416, 419 (2d Cir. 2005) (deeming testimony unreliable where an expert using the same data and methods could not replicate the results). Dr. Zona admits that using Dr. Haider's interpretation of this single document–an error of just 2.6 percentage points–drops his aggregate damages estimate for the entire proposed class by ten percent. Sharp-Wolfson Decl., Ex. 2 (Zona Reply) ¶ 80a & n.146.

"AdX win rate" is "not the same thing as the AdX win rate in [his] Figure 1 and Figure 2."
Id. 141:5-9. Nonetheless, he "took it as an increase in the numerator in the win rate," but
when asked what a conversion is in the context of Google Ads advertising, he said "I don't
know what they meant exactly by this." *Id.* 141:5-15. In actuality, advertiser conversion
volume refers to advertisers obtaining "conversions" (*e.g.*, sign-ups, sales) from their
advertisements.[4] By Dr. Zona's own admissions, the document says nothing about the
"AdX win rate." He has no valid basis for his opinion of the win-rate increase caused by
Bernanke.

- *Global Bernanke*. Dr. Zona cites an undated document for the proposition that Global
  Bernanke had "sell-side benefits" including an "[i]increase in overall match rate by about
  4%." Sharp-Wolfson Decl., Ex. 1 (Zona Op.) ¶ 74 n.79 (quoting Sessions Decl., Ex. 47
  (GOOG-DOJ-28339653) at -656). The document appears to reflect early experiments
  regarding Global Bernanke and does not purport to reflect the version of Global Bernanke
  that was eventually implemented. It references an "overall match rate" (which is nowhere
  defined in the document or by Dr. Zona). Whatever the "overall match rate" in this
  document is, Dr. Zona has no basis to assume that it is the same as his "AdX win rate"
  proxy for AdX's share of market-wide impressions. *See id.* ¶ 120 (Dr. Zona defines AdX
  win rate as the "effect of the various optimization programs on AdX's share in the exchange
  market.").

- *UPR*. Dr. Zona cites an email thread from August 2019 that discusses UPR, where a
  Google employee says that "On AdX-web, I see +31.8% impressions." *Id.* ¶ 87 (citing
  Sessions Decl., Ex. 48 (GOOG-DOJ-AT-00571933) at -933). Dr. Zona admitted that the

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[4] *See* Sessions Decl., Ex. 23 (Google Ads, *Prove ad impact with conversion measurement*, *available at*
https://business.google.com/us/ad-tools/conversion-tracking/ (last visited June 12, 2025)).

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discussion in this document actually refers to impressions won by DV360 as a result of

UPR.   Sessions Decl., Ex. 5 (Zona Dep.) 158:21-159:10.   This figure is thus doubly

inapposite: first, it has to do with DV360, which is excluded from Dr. Zona's self-service

open display advertising tools market.   Thus, it is discussing effects outside of Dr. Zona's

relevant markets.   Second, the rate at which DV360 wins auctions in AdX is not the same

as the rate at which AdX matches impressions or how much AdX wins overall.

Each of these errors in Dr. Zona's "win rate" assembly alone is enough to find his model unreliable,

as each document is a key input into his regression model from which he finds classwide impact

and calculates damages.   *See Amorgianos*, 303 F.3d at 267.   As he purports to be looking at the

changes that each optimization made to the "win rate," an error in one win rate cascades to the

optimizations that come later.   And cumulatively, these errors and inconsistencies show the sheer

unreliability of whatever it is that Dr. Zona tried to accomplish.   *See Louis Vuitton Malletier v.*

Dooney & Bourke, Inc., 525 F. Supp. 2d 558, 603 (S.D.N.Y. 2007) ("cumulative errors" rendered

expert survey evidence "inadmissible" . . . "even if each error considered alone might be thought

a question of weight").

In his reply report, Dr. Zona tries to defend his interpretations of the documents.   In

response to Dr. Haider's criticism about his "win rate" for Buy-Side DRS, Dr. Zona opines that

"other documents support [his] interpretation" that Buy-Side DRS increased the "AdX win rate"

by 4.6 percent.   Sharp-Wolfson Decl., Ex. 2 (Zona Reply) ¶ 80a, n.146.   He cites a different Google

document for the proposition that "Google emails discussing AdX win rates attribute a 10

percentage point increase in Google Ads match rate to the combination of Bernanke and BS-DRS,

of which Bernanke was responsible for seven percentage points.   Therefore the increase

attributable to BS-DRS would be about three percentage points."   *Id*.   His attempt to rehabilitate

his "win rate" with a different document fares no better. This document in fact discusses the *AdWords match* rate, not the "*AdX win* rate." Sessions Decl., Ex. 51 (GOOG-TEX-00448132) at -136. Dr. Zona conceded as much at his deposition: "this one is AdWords match rate, right, which is not the same as Google AdX win rate." Sessions Decl., Ex. 5 (Zona Dep.) 134:2-6; *see also id.* 134:14-24 (agreeing "the AdWords match rate is not the same thing as the AdX win rate [] depict[ed] in Figure 1 and 2 of [Dr. Zona's] report"); *id.* 137:4-13 (agreeing that "a 10 percent change in the Google Ads match rate is not the same thing as a 10 percent change in the AdX win rate that [he is] reporting in Figure 1 and Figure 2."). Also, Dr. Zona testified he could not identify where in the document the "win rate" attributable to Buy-Side DRS is three percent. *Id.* 137:17-22. That is because it is not there. He simply made it up. Finally, 3 percent is obviously not the same as 4.6 percent. Dr. Zona's assertion that 3 percent is the same as 4.6 percent (or that a made-up three percent supports his citation of 4.6 percent) highlights the very problem with his methodology: it is unscientifically imprecise, detached from reality, and opts for casually cherry-picking irrelevant numbers from documents.

In keeping with his reliance on wildly inconsistent metrics, at times measuring statistics for advertisers outside the proposed class or in a different proposed market, Dr. Zona avoids any meaningful inquiry into whether the "AdX win rate" he gleaned from Google documents has any connection to what he was trying to measure. *See Lava Trading Inc. v. Hartford Fire Ins. Co.*, 2005 WL 4684238, at *16-*17 (S.D.N.Y. Apr. 11, 2005) (excluding testimony where an expert relied upon a "sense" that certain facts were plausible but avoided a meaningful inquiry into whether his opinions actually had a basis in fact). This dooms his testimony. *See id.* at *17; *Washington v. Kellwood Co.*, 105 F. Supp. 3d 293, 321-22 (S.D.N.Y. 2015) (excluding expert testimony as unreliable expert's market forecast analysis was not supported by the facts upon

which it was allegedly based). Moreover, his approach relies on cherry-picking documents from the record in assembling his "win rate," but not verifying if they actually support his conclusions. They do not. Without any reliable basis to select some data and ignore others, Dr. Zona's opinion is unreliable.

b) Dr. Zona baselessly assumes that the effect of each Google optimization is instantaneous, constant, and permanent.

Dr. Zona assumes for his analysis that his "AdX win rate" increases instantly and does not change over the life of an optimization, despite admitting that in reality the "win rate" may have gone up or down over time. Sessions Decl., Ex. 5 (Zona Dep.) 145:3-20. He offers no support for his speculative assumption anywhere in his reports. *See Major League Baseball Props., Inc. v. Salvino, Inc.*, 542 F.3d 290, 311 (2d Cir. 2008) ("[T]he admission of expert testimony based on speculative assumptions is an abuse of discretion.") (cleaned up). This assumption is crucial to his analysis, because changes in "win rate" over time would significantly affect the results of Dr. Zona's model (and, as demonstrated *supra* at 10 n.3, even minor changes in his inputs have drastic effects on his damages calculation). Dr. Zona admits that "the changes in win rate from the various 'optimizations' are the relevant statistics from the data" for purposes of his modeling. Sharp-Wolfson Decl., Ex. 2 (Zona Reply) ¶ 79. However, he *only* looks at the "win rate" at the time an optimization launches (if even that).[5] If, for example, the "win rate" decreased after the launch of one optimization but before the launch of another, his estimated change in "win rate" from these two optimizations (the input into his model) would not capture any after-launch decrease in "win rate" and would thus be completely different from reality, rendering his classwide impact and

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[5] Dr. Zona introduced "lagged effects" into the regression offered in his reply report. These lagged-effects variables attempt to control for the possibility that a change in AdX's exchange market share would have a delayed effect on prices. His new lagged effects variables do not have anything to do with the possibility that an optimization has a delayed or time-varying effect on the "AdX win rate."

damages model unreliable. Dr. Zona offers no reason for failing to investigate or acknowledge this fact.

c) Dr. Zona contradicts his own opinions by assuming there is no procompetitive effect from any of Google's optimizations.

Dr. Zona baselessly attributes the entirety of any "AdX win rate" increase to anticompetitive effects rather than procompetitive increases in output. He does so despite recognizing that if an optimization raised "AdX's win rate" by increasing the sale of impressions that would otherwise have gone unfilled, the optimization would have raised output. Sharp-Wolfson Decl., Ex. 1 (Zona Op.) ¶ 82; Sessions Decl., Ex. 5 (Zona Dep.) 166:5-16. But he utterly failed to account for output increases. In conducting his assembly of "AdX win rates," he did not analyze how much of any increase in matched impressions from any of Google's optimizations came from displacing non-Google bidders versus winning new impressions that would have previously gone unmatched. Sessions Decl., Ex. 5 (Zona Dep.) 129:22-130:1, 166:18-167:8; Sessions Decl., Ex. 6 (Haider Dep.) 68:22-69:6. "While an expert need not rule out every potential cause in order to satisfy *Daubert*, the expert's testimony must at least address obvious alternative causes and provide a reasonable explanation for dismissing specific alternate factors identified by the defendant." *Tardif v. City of New York*, 344 F. Supp. 3d 579, 601 (S.D.N.Y. 2018) (cleaned up). *See also Matthews v. Hewlett-Packard Co.*, 2017 WL 6804075, at *5 (S.D.N.Y. Dec. 22, 2017); *DeRienzo v. Metro. Transp. Auth.*, 694 F. Supp. 2d 229, 236 (S.D.N.Y. 2010). Dr. Zona decided not to consider *any* alternative causes for his "win rate" increases, despite acknowledging them, which only further supports excluding his testimony. *See Dependable Sales & Serv., Inc. v. TrueCar, Inc.*, 311 F. Supp. 3d 653, 663 (S.D.N.Y. 2018) (excluding expert's causation analysis where the expert necessarily attributed each sale by a defendant-affiliated dealer as a sale lost by a plaintiff rather than by some other dealer); *Compania Embotelladora Del Pacifico, S.A. v. Pepsi*

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Cola Co., 650 F. Supp. 2d 314, 319 (S.D.N.Y. 2009) (excluding expert testimony that "in a 'but for' world," plaintiff "would have made each and every one of [the] sales that were made by bottlers or distributors other than [plaintiff]").

d) Dr. Zona offers no support for his methodology.

Dr. Zona does not provide any support, academic or otherwise, for his purported "method" of plucking "win rates" from a handful of ordinary-course documents and deriving from four inapposite and unreliable data points "the effect of the various optimization programs on AdX's share in the exchange market." *See* Sharp-Wolfson Decl., Ex. 1 (Zona Op.) ¶ 120. For this portion of his opinions, he did not purport to use a single tool of economics, nor did he purport to perform any scientific method of data analysis. Indeed, while he purported to calculate AdX's market share based on actual data elsewhere in his report, he looked at no data whatsoever to derive the "win rate" increases. He testified that he has "gone to different sources to try and estimate . . . what the AdX win rate is. And [he's] using different elements to try and come up with a reasonable estimate of what these things are." Sessions Decl., Ex. 5 (Zona Dep.) 136:1-13. Google has not found a single case supporting such a method to estimate anticompetitive effects or antitrust impact.

In sum, Dr. Zona's assembly of "AdX win rate" is based on a methodology that is "simply inadequate to support the conclusions reached," such that "*Daubert* and Rule 702 mandate the exclusion of that unreliable opinion testimony." *Amorgianos*, 303 F.3d at 266.

2. Dr. Zona's opinions that purchases from AdSense were affected even though they did not involve any ad exchanges are unreliable.

In the alternative, Dr. Zona's opinions regarding Google Ads advertisers sourcing impressions from AdSense should be excluded, including his AdSense-specific model in his opening report and the entirety of the model he puts forward in reply. Dr. Zona opines that Google Ads advertisers who used a CPC cost type—*i.e.*, over 50% of proposed class members (based on

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total impressions) who used AdSense as their inventory source—were impacted, and he estimates

damages that include those transactions. Sharp-Wolfson Decl., Ex. 1 (Zona Op.) ¶ 130, Tbl. 2,

¶ 138, Tbl. 5; Sharp-Wolfson Decl., Ex. 2 (Zona Reply) ¶ 103, Tbl. 1; Mot. at 28. In his opening

report, Dr. Zona estimates impact and damages separately for advertisers using AdX or third-party

exchanges and those using AdSense, but in his reply report, he combines all transactions into a

single model. Sessions Decl., Ex. 5 (Zona Dep.) 205:13-17. His AdSense model in his opening

report and combined model in his reply report should be excluded because they are irrelevant and

unreliable.

Dr. Zona's testimony regarding AdSense advertisers "does not relate to any issue in the

case," and is therefore "not relevant and, ergo, non-helpful." *See Daubert*, 509 U.S. at 591.

Plaintiff's Complaint does not allege that any at-issue optimization harmed Google Ads advertisers

sourcing impressions via AdSense. In fact, the Complaint does not even mention "AdSense." It

is undisputed that the Bernanke optimizations concerned Google Ads bidding into AdX, and UPR

concerned rules about price floors for ad exchanges. Sharp-Wolfson Decl., Ex. 1 (Zona Op.) ¶¶ 70

(Buy-Side DRS affected bids submitted into AdX), 87 (UPR affected price floors on AdX), 105

(Project Bernanke and Global Bernanke affected bids submitted into AdX); *see also* Sessions

Decl., Ex. 5 (Zona Dep.) 51:4-12 (testifying that Project Bernanke and Global Bernanke "did not

operate on bids that were submitted into AdSense"). Neither has anything to do with AdSense.

Testimony about advertisers who cannot possibly have been impacted by the alleged

anticompetitive conduct (and therefore could not possibly have any damages) is irrelevant and

should be inadmissible for that reason alone. *See Comcast Corp. v. Behrend*, 569 U.S. 27, 35

(2013) ("[A] model purporting to serve as evidence of damages in this class action must measure

only those damages attributable to that theory. If the model does not even attempt to do that, it

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cannot possibly establish that damages are susceptible of measurement across the entire class for purposes of Rule 23(b)(3).").

This testimony is also unreliable because Dr. Zona offers no economic theory for how the optimizations at issue could have caused price increases for Google Ads advertisers on AdSense. *See In re Mirena IUS Levonorgestrel-Related Prods. Liability Litig.*, 387 F. Supp. 3d 323, 339 (S.D.N.Y. 2019) ("To assure reliable outcomes in a circumstance where the origins of an injury are not obvious . . . it is imperative that the factfinder be presented evidence that the product was capable of causing the injury of which a plaintiff complains."); *see also In re Joint E. & S. Dist. Asbestos Litig.*, 758 F. Supp. 199, 204 (S.D.N.Y. 1991) (excluding expert testimony on causation where the underlying assumptions were not adequately supported in the record). Dr. Zona's models in both of his reports purport to measure "the effect of changes in Google's AdX market share in the exchange market on the prices charged to Google Ads' advertisers." Mot. at 27 (quoting Sharp-Wolfson Decl., Ex. 1 (Zona Op.) ¶ 134); *see also* Sessions Decl., Ex. 5 (Zona Dep.) 171:9-23. But he does not explain how changes in AdX's market share have anything to do with advertisers who buy through AdSense. Plaintiff concedes that AdSense transactions do not involve AdX or any other ad exchange. Mot. at 4 n.2. They therefore occur wholly outside the allegedly affected ad exchange market.

Faced with these facts, Dr. Zona must offer some theory as to how AdSense transactions could possibly have been affected by optimizations affecting a completely separate alleged market. In his opening report, he offered none.[6] In his reply report, he elected to combine both types of transactions into one model, with no accompanying explanation. The entirety of his response to

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[6] Indeed, Dr. Zona implicitly conceded that AdSense and ad exchange transactions should be treated differently, as he split the two transaction types and reported different regression results for each. Sharp-Wolfson Decl., Ex. 1 (Zona Op.) Tbl. 3.

this criticism was to say that Project Bernanke raised rivals' costs in a *different* market, his self-service buying tools market, thereby "driving market prices to a supra-competitive equilibrium" that "contribute[d] to maintaining Google Ads' market position and its pricing, including its pricing for Google Ads' impressions sourced through AdSense, particularly because advertisers do not know whether the source of the impressions displaying their ads is AdSense or AdX." Sharp-Wolfson Decl., Ex. 2 (Zona Reply) ¶ 58.   He offers no support whatsoever for this statement, and it therefore does not suffice as a theory or explanation. Nor does the statement—taken at face value—actually explain how or why optimizations that supposedly affected the ad exchange market would have any indirect or downstream effect on the price of ads bought through AdSense, which is not an ad exchange.[7] His assertion that Bernanke raised costs for rival "self-service buying tools" might in theory explain why the prices of *rivals' buying tools* increased, but this says nothing about how or why the price of advertising through AdSense would have increased. His conclusory opinion to the contrary amounts to pure *ipse dixit*. *See In re M/V MSC Flamina*, 2017 WL 3208598, at *5 (S.D.N.Y. July 28, 2017) (excluding expert testimony that "fails to provide a methodology that would allow a court to assess reliability"); *see, e.g.*, *Joiner*, 522 U.S. at 146.

Dr. Zona's reports are completely silent as to how UPR could have even theoretically affected advertisers on AdSense. Any opinion proffered by Dr. Zona as to impact or damages to AdSense advertisers from UPR is therefore entirely speculative. *See Major League Baseball Props.*, 542 F.3d at 311 (holding that admitting expert testimony based on speculative assumptions is an abuse of discretion).

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[7] Even if Dr. Zona had offered a theory, his testimony on this point would still be irrelevant and unhelpful because AdSense advertisers have no cause of action to recover for supposed overcharges where they did not directly purchase the product at issue.

Dr. Zona's regressions themselves cannot qualify as either a theory or proof of impact or damages. One cannot infer causation from regression results alone, especially where no economic theory is offered whatsoever. *See* Sessions Decl., Ex. 71 (Daniel L. Rubinfeld, *Reference Guide on Multiple Regression*, *in* REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 303 (Fed. Jud. Ctr. ed., 3d ed. 2011)) at 310 ("Causality cannot be inferred by data analysis alone; rather, one must infer that a causal relationship exists on the basis of an underlying causal theory that explains the relationship between the two variables."). As the Supreme Court explained in *Comcast*, "at the class-certification stage (as at trial), any model supporting a plaintiff's damages case must be consistent with its liability case, particularly with respect to the alleged anticompetitive effect of the violation." 569 U.S. at 35 (cleaned up). As explained, Dr. Zona's opinions that purchases from AdSense were affected are untethered from Plaintiff's own allegations related to Global Bernanke and UPR, and unsupported by any economic theory. They should therefore be excluded.

IV.   DR. HAL J. SINGER'S TESTIMONY SHOULD BE EXCLUDED.

A. BACKGROUND

Relevant to Google's Motion, Plaintiff proffers the opinions of Dr. Singer for the purpose of establishing classwide antitrust impact and damages related to UPR. Mot. at 28. Plaintiff alleges that Google used UPR to eliminate publishers' ability to favor non-AdX exchanges and non-Google buying tools with the purported effect of causing advertisers using Google Ads to pay more for ad space transacted through AdX than they would have absent UPR. ECF No. 399 ¶¶ 10, 257-259; Sharp-Wolfson Decl., Ex. 3 (Singer Op.) ¶ 64.

Google implemented UPR at the same time it moved from a second price auction to a Unified First Price Auction ("UFPA")[8] in GAM. *E.g.*, Sessions Decl., Ex. 31 (GOOG-AT-MDL-019740145) at -146; *see also* Sharp-Wolfson Decl., Ex. 3 (Singer Op.) ¶ 93. Google introduced an open beta for UPR on May 6, 2019,[9] a beta for UFPA on June 10, 2019,[10] and fully launched both in September 2019. Sessions Decl., Ex. 31 (GOOG-AT-MDL-019740145); *see also* Sharp-Wolfson Decl., Ex. 3 (Singer Op.) ¶ 93. Plaintiff does not allege that the class was harmed by Google's shift to UFPA, and the shift was consistent with a larger industry transition from second price auctions to first price auctions, which was generally viewed as a beneficial move for the industry, increasing the simplicity, transparency, and fairness of auctions.[11]

1.   Dr. Singer's opinions on classwide antitrust impact and damages

Dr. Singer's opinions as to impact and damages are limited to a subset of advertisers who used Google Ads since September 2019 to purchase "open web" display ad space transacted through AdX. Sharp-Wolfson Decl., Ex. 3 (Singer Op.) ¶ 7; *see also* Sessions Decl., Ex. 3 (Singer Dep.) 22:16-21.

Dr. Singer proposes two alternative methods for assessing purported classwide impact and damages resulting from the implementation of UPR: an "Indirect Method" and a "Direct Method." Sharp-Wolfson Decl., Ex. 3 (Singer Op.) ¶¶ 68, 109, 129-131; Sharp-Wolfson Decl., Ex. 4 (Singer

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[8] UFPA is an auction mechanism in GAM that compares offers that the publisher has obtained for an impression via a range of different channels at the same time (with the highest bidder winning the auction and paying the amount of its bid). Sharp-Wolfson Decl., Ex. 7 (Israel Rpt.) ¶ 142.

[9] During the open beta period, UPR was "available to publishers," and "[a]ll publishers [were] encouraged to start setting unified pricing rules to prepare for the transition to unified 1st price auction." Sessions Decl., Ex. 31 (GOOG-AT-MDL-019740145) at -146.

[10] The UFPA auction beta was rolled out in monthly stages in which Google would incrementally increase the percentage of publisher traffic diverted to UFPA. Sessions Decl., Ex. 31 (GOOG-AT-MDL-019740145) at -146.

[11] *See, e.g.*, Sessions Decl., Ex. 2 (Sam Cox, "Simplifying programmatic: first price auctions for Google Ad Manager," Google Ad Manager (Mar. 6, 2019), https://blog.google/products/admanager/simplifying-programmatic-first-price-auctions-google-ad-manager/ (last visited June 12, 2025)); Sharp-Wolfson Decl., Ex. 6 (Milgrom Rpt.) § III.C.4 (describing the industry's transition to first-price auctions and the primary concerns the transitions addressed).

Reply) ¶ 7; Sessions Decl., Ex. 3 (Singer Dep.) 162:13-18. These are the only two means by which

Dr. Singer claims to assess classwide impact and damages.

Dr. Singer's Indirect Method. Dr. Singer's Indirect Method for assessing classwide

impact and damages resulting from UPR is premised on the theory that (i) UPR steered impressions

to AdX at the expense of rival exchanges, and (ii) absent UPR, Google would have decreased

AdX's revenue share to regain those impressions, with a portion of the savings from the reduced

revenue share being passed on to advertisers. Sharp-Wolfson Decl., Ex. 3 (Singer Op.) ¶¶ 76-77.

Accordingly, Dr. Singer's Indirect Method attempts to measure any increase in impressions on

AdX attributable to UPR, assess how much AdX's revenue share would need to decrease for AdX

to see the same increase in impressions absent UPR, and apportion the decrease in revenue share

to the putative class. *Id.* ¶ 68. Dr. Singer endeavors to do this by applying the following three-

step process.

First, Dr. Singer purports to "isolate the lift in AdX impressions . . . owing to UPR." *Id.*

¶ 77. He does this by constructing a "before-after" regression model in which he compares the

number of monthly impressions transacted through AdX from Google Ads before the launch of

UPR as compared to after the launch of UPR. *Id.* ¶¶ 80-96. Using this model, Dr. Singer finds an

increase of approximately 753.65 million monthly impressions—the "impression lift"—

purportedly attributable to UPR. *Id.* ¶ 96. This monthly impression lift reflects the monthly

average increase in impressions on AdX over a period from September 2019 to March 2024 and

across thirteen different advertiser "verticals," *i.e.*, the categories of industries, such as Retail,

Healthcare, and Government and Education, within which advertisers using Google Ads operate.

Id. ¶¶ 81, 86, 96; Sessions Decl., Ex. 1 (Haider Rpt.) Exhibit 11. Dr. Singer attributes all increased

impressions captured by his model to UPR. Sharp-Wolfson Decl., Ex. 3 (Singer Op.) ¶ 96.

Having determined the impression lift purportedly attributable to UPR, Dr. Singer next attempts to "solve[] for the reduction in the AdX take rate that would produce the same lift in impressions." Sharp-Wolfson Decl., Ex. 3 (Singer Op.) ¶¶ 9, 105-109. Dr. Singer assumes that UPR and "Total Take Rate" exert a direct influence on the number of impressions filled through Google Ads on AdX. *Id.* ¶¶ 80, 88-92. He concludes that each percentage point reduction in Google's AdX revenue share would increase monthly impressions by 163.26 million, and therefore Google would have had to reduce its AdX revenue share by "4.62 percentage points in order to yield the same impression lift" as he calculated in step one. *Id.* ¶ 106, Tbl. 3.

Third, Dr. Singer quantifies classwide impact and damages by calculating incidence, *i.e.*, how his but-for reduction in the AdX revenue share yielded by his model translates "into a savings for advertisers based on the advertisers' take rate burden." *Id.* ¶¶ 9, 100, 104, 109.

Dr. Singer's Direct Method. Dr. Singer's alternative Direct Method for assessing classwide impact and damages resulting from UPR is premised on the theory that "Google introduced UPR to prevent advertisers from acquiring the same inventory for cheaper through Open Bidding[12] rather than AdX" and absent UPR, Google would have "needed to lower its take rate to compete [with Open Bidding] for the same impressions." *Id.* ¶ 124. Accordingly, Dr. Singer's Direct Method attempts to establish classwide antitrust impact and damages by (1) observing changes in price (measured in CPMs[13]) and impressions on AdX as compared to Open Bidding before and during UPR and (2) attributing any change to UPR, using a "difference-in-differences" ("DiD") regression model.[14]

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[12] Open Bidding is a feature of GAM through which non-Google exchanges, *i.e.*, exchanges other than AdX, can compete in real time for impressions (often against AdX).

[13] CPM, or cost-per-mille, refers to the common metric by which publishers receive payment for their ad inventory. *See* Sharp-Wolfson Decl., Ex. 3 (Singer Op.) ¶ 29.

[14] Generally speaking, a DiD model is a type of regression analysis that, when properly applied, is meant to compare changes in a treatment group versus changes in a control group to capture general trends. Sessions Decl., Ex. 72 (Columbia   Mailman   School   of   Public   Health,   "Difference-in-difference   Estimation,"

To attempt to address flaws in his model identified by Google's experts, Dr. Singer overhauled the methodology underlying his DiD model between his initial and reply report. Sessions Decl., Ex. 3 (Singer Dep.) 189:22-190:15. As a result of these changes, Dr. Singer's classwide damages estimates dropped by approximately 30 percent. *Id.* 191:3-14. At his deposition, Dr. Singer disavowed that the DiD model he presented in his initial report is capable of demonstrating classwide impact and damages. *See id.* 190:18-191:25. Relevant to this Motion, Dr. Singer changed his DiD model on reply in four key respects.

First, in response to criticisms from Google's experts, *e.g.*, Sessions Decl., Ex. 1 (Haider Rpt.) ¶¶ 192-208, Dr. Singer used a different dataset to construct his DiD model, Sharp-Wolfson Decl., Ex. 4 (Singer Reply) ¶¶ 172-173. In his initial report, Dr. Singer relied on a dataset consisting of total monthly impressions and revenue across *all* U.S. user web impressions transacted through AdX or Open Bidding, including those purchased via DV360. *See id.* ¶¶ 110, 159, 172. This dataset did not allow Dr. Singer to break out transactions by buying tool, meaning that Dr. Singer's original DiD model included a broader swath of transactions than those applicable to the subset of advertisers for whom Dr. Singer was tasked with assessing impact and damages (*i.e.*, advertisers using Google Ads). *See id.* ¶¶ 159, 162. In his reply report, Dr. Singer replaced this dataset with a more granular AdX dataset that allowed him to isolate the Google Ads purchases at issue in Plaintiff's case. *See id.* ¶¶ 159, 162, 172.

Second, Dr. Singer flipped the control and treatment group between his first and second report. In his initial report, Open Bidding was the treatment group, meaning it was the thing being affected by the alleged conduct, *i.e.*, UPR. Sharp-Wolfson Decl., Ex. 3 (Singer Op.) ¶¶ 9(1), 118-

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https://www.publichealth.columbia.edu/research/population-health-methods/difference-difference-estimation#:~:text=some%20social%20sciences.-,Description,to%20estimate%20a%20causal%20effect (last visited June 13, 2025)).

19. Dr. Singer found that prices *on Open Bidding* rose to AdX price levels as a result of UPR. *Id.* ¶ 122. He used this purported increase of prices on Open Bidding to determine the UPR price lift. *Id.* ¶ 125(v). In his reply report, Dr. Singer uses Google Ads transactions on AdX as his treatment group. Sharp-Wolfson Decl., Ex. 4 (Singer Reply) ¶ 175. Dr. Singer now finds that UPR caused prices *of Google Ads transactions on AdX* to rise. In short, between his first and second report, Dr. Singer changed the mechanism by which the putative class was purportedly harmed by UPR: paying more for Open Bidding transactions (initial report) to paying more for Google Ads transactions on AdX (reply report).

Third, between his initial report and reply report, Dr. Singer relied on a different data field from which to derive the impression data used to populate his model. *See id.* ¶ 164. His original model relied on a field for ▇▇▇▇▇▇▇ and his new model relied on a field for ▇▇▇▇▇▇▇ ▇▇▇▇▇▇ Sessions Decl., Ex. 3 (Singer Dep.) 196:17-21, 222:15-23, 348:21-349:5; Sharp-Wolfson Decl., Ex. 4 (Singer Reply) ¶ 164.

Fourth, Dr. Singer changed the time periods he used to calculate his price lift and impression lift. *Compare* Sharp-Wolfson Decl., Ex. 3 (Singer Op.) ¶¶ 117, 125(i-ii), *with* Sharp-Wolfson Decl., Ex. 4 (Singer Reply) ¶¶ 176, 183 n.192, 187. Dr. Singer measured UPR price and impression lift by comparing monthly average CPMs and impressions on AdX to Open Bidding. Sharp-Wolfson Decl., Ex. 3 (Singer Op.) ¶ 125; Sharp-Wolfson Decl., Ex. 4 (Singer Reply) ¶¶ 177-179. He did this for a "before UPR period" and a "during UPR period." Sharp-Wolfson Decl., Ex. 3 (Singer Op.) ¶ 117. Between reports, Dr. Singer changed the "before" and "during" UPR periods for these calculations, as shown in Table 1 below:

Table 1

Calculation	Report	Before UPR Period		During UPR Period	
		Start	End	Start	End
CPM Price Lift	Opening Report	January 2017	Aug. 2019	Sept. 2019	Dec. 2022
	Rebuttal Report	July 2016	Aug. 2019	Sept. 2019	March 2024
Impression Lift	Opening Report	January 2017	Aug. 2019	Sept. 2019	Dec. 2022
	Rebuttal Report	January 2018	Aug. 2019	Sept. 2019	March 2024

B. ARGUMENT

1. Dr. Singer's Indirect Method for measuring classwide impact and damages is unreliable.

Dr. Singer's Indirect Method is unreliable because Dr. Singer constructs a regression model that (1) does not account for confounding factors that influenced his observed impression lift on AdX and (2) is built on unfounded assumptions.

a) Dr. Singer does not control for key factors relevant to impression lift.

Dr. Singer's model is unable to isolate the alleged impact of UPR on the putative class and is therefore not reliable in determining classwide impact and damages related to UPR. Plaintiff shoulders the burden of establishing that Dr. Singer's model accounts for lawful confounding variables. *Kumho*, 526 U.S. at 154 ("The relevant issue was whether the expert could reliably determine the cause of *this* tire's separation.") (emphasis in original); *see also Freeland v. AT&T Corp.*, 238 F.R.D. 130, 145 (S.D.N.Y. 2005) ("Because the burden of proving helpfulness and relevance rests on the proponent of a regression analysis, it is the proponent who must establish that the major factors have been accounted for in a regression analysis."). This is because "[f]ailure to include a major explanatory variable that is correlated with the variable of interest in a regression model may cause an included variable to be credited with an effect that actually is caused by the excluded variable." *Freeland*, 238 F.R.D. at 148 (cleaned up); *see also Concord Boat Corp. v. Brunswick Corp.*, 207 F.3d 1039, 1057 (8th Cir. 2000) (holding that experts must "incorporate all

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aspects of economic reality" into economic models and ensure that models "separate lawful from unlawful conduct").

Courts warn that the need to account for key variables is "particularly important in the context of antitrust litigation" where the use of regressions is common, *e.g.*, *In re Live Concert Antitrust Litig.*, 863 F. Supp. 2d 966, 973-74 (C.D. Cal. 2012), and the Second Circuit has consistently held that failure to control for confounding factors renders a regression "fatally flawed" and unreliable under *Daubert*, *see, e.g.*, *Amorgianos*, 303 F.3d at 268-69 (affirming exclusion of expert testimony as unreliable and "fatally flawed" because the expert failed to control for confounding variables); *Forte v. Liquidnet Holdings, Inc.*, 675 F. App'x 21, 24 (2d Cir. 2017) (same).

Here, Dr. Singer fails to account for (1) the simultaneous introduction of Google's UFPA with UPR and (2) individual industry factors that affected the impressions for different advertiser verticals over time, rendering his model "fatally flawed" and unreliable.

(1) Dr. Singer's model does not account for the impact of UFPA on impressions.

Dr. Singer's model does not include any control variable to account for Google's transition to UFPA, which Google launched in connection with, and concurrent to, its implementation of UPR. Sharp-Wolfson Decl., Ex. 3 (Singer Op.) ¶ 93; *see also* Section IV.A. Indeed, Google paired the implementation of UPR with UFPA as part of an overall strategy to introduce more simplicity into its auction to help "create a fair and transparent market for advertisers and publishers." Sessions Decl., Ex. 31 (GOOG-AT-MDL-019740145).[15] Google believed that such improvements in simplicity, fairness, and transparency would result in "AdX wins[,] as fill rate will improve and

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[15] *See also* Sessions Decl., Ex. 7 (Korula Dep.) 96:22-97:1 ("We felt that overall making this change would be good for simplicity, good for transparency, and would generally result in more efficiency and improvements to the ecosystem."), 192:24-194:21 (discussing benefits of simplicity and transparency for publishers and advertisers).

access is improved in AdX." Sessions Decl., Ex. 38 (GOOG-DOJ-10296947) at -947. Plaintiff

does not contradict this evidence or challenge UFPA as anticompetitive.

Thus, Dr. Singer's failure to include a variable to control for the lawful effects of UFPA is

problematic, particularly because Dr. Singer conceded that the simultaneous transition to UFPA

"could have confounding effects" on his regression. Sessions Decl., Ex. 3 (Singer Dep.) 52:17-

24. This merits exclusion of Dr. Singer's Indirect model and any opinions stemming therefrom as

he admittedly did not control for a variable that he understood could have impacted the results of

his model. *See In re Live Concert Antitrust Litig.*, 863 F. Supp. 2d at 974-977 (excluding expert

testimony based on regression that did not control for "major variables," *i.e.*, variables that could

have "impacted the results" of the regression); *In re Wireless Tel. Servs. Antitrust Litig.*, 385 F.

Supp. 2d 403, 427-28 (S.D.N.Y. 2005) (excluding expert's regression analysis as unreliable for

failing to incorporate major independent variables).

Plaintiff may suggest that the Revenue Equivalence Theorem ("RET")[16] saves Dr. Singer's

opinion. But at his deposition Dr. Singer denied that "his basis" for excluding a control variable

for UFPA was the RET. Sessions Decl., Ex. 3 (Singer Dep.) 59:13-24 (indicating RET was not

his "basis for suggesting that UFPA might not" increase impressions). Dr. Singer also conceded

that he conducted no empirical analysis to establish the applicability of the RET's requisite

conditions and that he did not study whether Google's simultaneous move to UFPA had an impact

on impressions. *Id.* 61:22-62:15. By failing to distinguish between impression lift attributable to

UPR and any lawful effects of Google's simultaneous transition to UPFA, Dr. Singer's Indirect

model fails to meet the *Daubert* standard of reliability and should be excluded.

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[16] The RET is a concept of auction theory that states that under certain conditions, alternative auction formats (*e.g.*, first-price vs. second-price) will yield the same expected revenue. *See* Sessions Decl., Ex. 77 (Despotakis, Stylianos, R. Ravi, and Amin Sayedi, "First-price auctions in online display advertising," Journal of Marketing Research, Vol. 58, No. 5, 2021), pp. 888-907, at pp. 894.

**(2) Dr. Singer's model does not account for non-UPR factors
that impacted impressions.**

Dr. Singer's model also does not control for variables other than UPR that drove increases in impressions in particular advertising verticals. In fact, only four advertiser verticals experienced an overall increase in monthly average impressions post-UPR. *Id.* 118:20-119:7; *see also* Sessions Decl., Ex. 1 (Haider Rpt.) Exhibit 11. For three of those verticals, obvious, non-UPR factors impacted impressions. For example, beginning in early 2020 (just a few months after Google implemented UPR), the United States along with the rest of the world faced the historic COVID-19 pandemic. Dr. Singer admits that at this same time, AdX saw atypical spikes in monthly impressions in the Healthcare advertising vertical. Sessions Decl., Ex. 3 (Singer Dep.) 120:6-121:6; *see also* Sessions Decl., Ex. 1 (Haider Rpt.) Exhibit 12.[17] Indeed, Dr. Singer admits that the only time following the implementation of UPR that monthly impressions on AdX in the Healthcare vertical ███████████████████ was from January 2020 through June 2021—the time corresponding with the height of the COVID-19 pandemic. Sessions Decl., Ex. 3 (Singer Dep.) 121:15-25, 122:13-123:7; *see also* Sessions Decl., Ex. 1 (Haider Rpt.) Exhibit 12.

Another advertising vertical for which AdX saw post-UPR spikes in monthly impressions was the Retail vertical. *See* Sessions Decl., Ex. 1 (Haider Rpt.) Exhibit 15. The first spike occurred between mid-2020 and early 2021 when e-commerce exploded during the COVID-19 pandemic. *See id.*; Sessions Decl., Ex. 3 (Singer Dep.) 130:5-131:6. ████████████████████ ███. Sessions Decl., Ex. 1 (Haider Rpt.) Exhibit 15; Sessions Decl., Ex. 3 (Singer Dep.) 128:10-129:5. Notably, ████████ the impressions comprising the ████████████ come from a single

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[17] Applying Dr. Singer's methodology, Dr. Haider calculates monthly impression lift by individual advertiser verticals, including for the Healthcare vertical, Sessions Decl., Ex. 1 (Haider Rpt.) Exhibit 12, the Education & Government vertical, *id.* at Exhibit 13, the Services vertical, *id.* at Exhibit 14, and the Retail vertical, *id.* at Exhibit 15.

advertiser: Temu. *See* Sessions Decl., Ex. 1 (Haider Rpt.) Exhibit 15, ¶ 161; Sessions Decl., Ex. 3 (Singer Dep.) 130:5-131:6. Temu, a large online marketplace, first entered the U.S. retail industry in late 2022. Sessions Decl., Ex. 1 (Haider Rpt.) ¶ 161; Sessions Decl., Ex. 3 (Singer Dep.) 129:12-19. Apart from these two periods of ███████████, monthly impressions in the Retail vertical in the post-UPR period ███████████████████████████████████. Sessions Decl., Ex. 1 (Haider Rpt.) Exhibit 15; Sessions Decl., Ex. 3 (Singer Dep.) 130:5-131:6. In fact, █

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███████████████████████████████████. Sessions Decl., Ex. 3 (Singer Dep.) 130:5-131:6; Sessions Decl., Ex. 1 (Haider Rpt.) Exhibit 15.

AdX also saw a temporary, post-UPR spike in impressions in the Services vertical. Sessions Decl., Ex. 1 (Haider Rpt.) ¶ 160, Exhibit 14; Sessions Decl., Ex. 3 (Singer Dep.) 127:5-13. As with the Retail vertical, the spike in the Services vertical was driven by one advertiser—Meta—whose monthly impressions on AdX surged from █████████████████████████

█████████████████████. Sessions Decl., Ex. 1 (Haider Rpt.) Exhibit 14; Sessions Decl., Ex. 3 (Singer Dep.) 127:14-20. Aside from this brief spike, monthly impressions in the Services vertical in the post-UPR period █████████████████████████. Sessions Decl., Ex. 1 (Haider Rpt.) Exhibit 14.[18]

Dr. Singer acknowledges the evident connection between COVID-19 and the increase of impressions observed in some verticals, yet he fails to construct his model to control for the

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[18] Even verticals that saw no overall increase in monthly average impressions post-UPR, experienced impression spikes associated with confounding market factors. For example, Dr. Singer admits that AdX saw an increase in monthly impressions in the Education and Government vertical beginning in January 2020 and dropping back to pre-UPR levels in January 2021. Sessions Decl., Ex. 3 (Singer Dep.) 123.21-124:10; *see also* Sessions Decl., Ex. 1 (Haider Rpt.) Exhibit 13. This was the same time when schools were grappling with in-person closures and remote learning due to the COVID-19 pandemic, and the United States was engaged in a presidential election, with the first primary taking place in February 2020. *See* Sessions Decl., Ex. 3 (Singer Dep.) 124:11-125:2; Sessions Decl., Ex. 1 (Haider Rpt.) ¶ 159.

potential impact of COVID-19 on *each* of these verticals. *See, e.g.*, Sessions Decl., Ex. 3 (Singer Dep.) 110:12-22; 120:6-121:6; 130:5-131:6. Similarly, Dr. Singer admits that he does not include any variable meant to account for the entry of a large new retailer (Temu), *id.* 129:20-25, or the idiosyncratic surge of purchasing by a single advertiser (Meta), *id.* 126:6-127:20, on the number of impressions.

Instead, Dr. Singer applies fixed effects. Sharp-Wolfson Decl., Ex. 3 (Singer Op.) ¶ 92. The limitation, however, of using fixed effects to control for variation between verticals is that fixed effects assume there is no change *within* the individual verticals over the entire observed period, here, January 2017 through March 2024. Sessions Decl., Ex. 3 (Singer Dep.) 115:11-21. And as the above discussion demonstrates, this is clearly not the case. In each of the above examples, an individual vertical experienced a spike, or spikes, in impressions for distinct periods correlated with an independent event or events. Dr. Singer even admits that fixed effects do not account for the entry of Temu as a major new advertiser or for Meta's purchasing surge. *Id.* 126:24-127:4, 129:20-25, 130:1-4.[19]

The failure of Dr. Singer's model to account for the factors that likely affect the impressions for different advertiser verticals over time is critical because any variation in impressions over time that is not explained by other factors in his model is thus attributed to UPR. Sessions Decl., Ex. 1 (Haider Rpt.) ¶ 169. This renders Dr. Singer's model unreliable and warrants exclusion of his opinions derived therefrom. *See, e.g.*, *Forte*, 675 F. App'x at 24 (affirming exclusion of expert testimony as unreliable where expert "did not control" for other variables "which might have

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[19] In an unsigned errata served by counsel on behalf of Dr. Singer, Plaintiff attempts to minimize the impact of these events, and Dr. Singer's failure to control for them, by contending that Dr. Singer did additional testing associated with Temu and Meta. Sessions Decl., Ex. 4 (Singer errata). Dr. Singer's supplemental testing, however, still employs a fixed effect to Meta and Temu and thus still does not account for how singular events in the post-UPR period may have impacted impression lift in particular verticals.

independently affected" the dependent variable); *Isaksen v. Vt. Castings, Inc.*, 825 F.2d 1158, 1165 (7th Cir. 1987) (Posner, J.) (rejecting damages analysis where plaintiff did not establish how much of his loss was due to antitrust violation as distinct from unrelated business factors, particularly where "it is apparent that other causal factors are at work"); *Weiner v. Snapple Beverage Corp.*, 2010 WL 3119452, at *7 (S.D.N.Y. Aug. 5, 2010) (excluding expert opinion where expert failed to explain how he would isolate the impact of the alleged conduct from other factors that affected prices); *R.J. Reynolds Tobacco Co. v. Premium Tobacco Stores, Inc.*, 2004 WL 1613563, at *8 (N.D. Ill. July 19, 2004) (holding that expert calculation suffered from "insurmountable flaw" of failing to take into account any harm from any source other than defendant, including market fluctuations and varying demand).

> ### b) Dr. Singer's Indirect Method relies on the incorrect assumption that Google would have lowered its revenue share for AdX absent UPR.

Dr. Singer's Indirect Method is also unreliable because it is based on the unfounded assumption that Google would have lowered AdX's revenue share to achieve the same impression lift in the but-for world in which Google did not launch UPR. *See* Sharp-Wolfson Decl., Ex. 3 (Singer Op.) ¶¶ 105-106. But Dr. Singer does not point to a single piece of evidence that suggests that Google contemplated an across-the-board reduction of AdX's revenue share as an alternative to UPR. Dr. Singer admits that he is unaware of any such evidence, but instead, argues that his assumption *must* be correct because the evidence suggests that at certain points, Google generally contemplated lowering its AdX revenue share as one strategy to compete. Sessions Decl., Ex. 3 (Singer Dep.) 69:10-70:9. Google has undoubtedly contemplated countless strategies to compete, but that does not say anything about whether Google contemplated wholly reducing the AdX revenue share as a direct alternative to UPR. Therefore, consistent with courts that regularly reject an expert's mere "intuition" or *ipse dixit* as capable of withstanding *Daubert* scrutiny, Dr. Singer's

opinions based on his Indirect Method should be excluded. *Oddi v. Ford Motor Co.*, 234 F.3d 136, 158 (3d Cir. 2000); *see also, e.g.*, *McGlinchy v. Shell Chem. Co.*, 845 F.2d 802, 807 (9th Cir. 1988) (affirming exclusion of damages study that rested on "unsupported assumptions"); *Buckley v. Deloitte & Touche USA LLP*, 888 F. Supp. 2d 404, 413-14 (S.D.N.Y. 2012) (excluding expert opinion based on "unfounded assumptions about what [parties] would have done if certain hypothetical events took place").

2. All opinions Dr. Singer derived from his original Direct Method should be excluded as Dr. Singer has disavowed that it is capable of demonstrating antitrust impact and damages.

Dr. Singer no longer stands behind the DiD model he presented in his initial report. *See* Sessions Decl., Ex. 3 (Singer Dep.) 190:18-191:25. He expressly conceded that his original model cannot "isolate the effect [of UPR] on Google Ads" and that it "assume[s] that the effects [of UPR] were the same across Google Ads and DV360." *Id.* 190:18-24, 191:15-22. Thus, by Dr. Singer's own admission, his original model derived from his Direct Method is incapable of showing that advertisers in the putative class suffered antitrust impact and damages attributable to UPR. *See In re Aluminum Warehousing Antitrust Litig.*, 336 F.R.D. 5, 52 (S.D.N.Y. 2020) ("The first step in an injury and damages study is the translation of the *legal theory of the harmful event* into an analysis of the economic impact *of that event*.") (citing *Comcast*, 569 U.S. at 38) (cleaned up).[20] Accordingly, any opinion stemming from Dr. Singer's original DiD model should be excluded, as an expert who "affirmatively repudiates or disavows an opinion expressed in the expert's report . . . should be precluded from offering that opinion." *Mitchell v. Geo Grp. Inc.*, 2022 WL 874287, at *5 (D. Ariz. Mar. 24, 2022); *see also, e.g.*, *In re Payment Card Interchange Fee & Merch. Disc.*

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[20] Plaintiff disingenuously suggests that Dr. Singer's reply report merely reaffirms the accuracy of his "model," and that "varying the 'treatment' group used in the regression analysis" somehow suggests that the original model was valid. Mot. at 30.

Antitrust Litig., 638 F. Supp. 3d 227, 267 (E.D.N.Y. 2022) (excluding a "parenthetical phrase" in an expert's report that created the "misleading" impression that the expert was offering an opinion he had disavowed); *Devito v. Smithkline Beecham Corp.*, 2004 WL 3691343, at *4 (N.D.N.Y. Nov. 29, 2004) (excluding expert testimony disavowed by the expert at deposition).

3. Dr. Singer's revised Direct Method for measuring classwide impact and damages is unreliable.

In an attempt to save his Direct Method, Dr. Singer presented a significantly revised version in his reply report. But as detailed below, this version is also unreliable and thus, Dr. Singer's opinions stemming from his Direct Method should be excluded.

a) Dr. Singer's Direct Method relies on the incorrect assumption that UPR enjoyed an open beta period that did not overlap with UFPA.

Dr. Singer's Direct Method is unreliable because he admits that it depends on a premise contradicted by the record evidence. *See, e.g.*, *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 594 & n.19 (1986) (affirming exclusion of expert testimony based on assumptions that were "implausible and inconsistent with record evidence"); *Amorgianos*, 303 F.3d at 269 (upholding exclusion of opinion that "rested on a faulty assumption"); *In re Fosamax Prods. Liab. Litig.*, 807 F. Supp. 2d 168, 183 (S.D.N.Y. 2011), *aff'd*, 707 F.3d 189 (2d Cir. 2013) (excluding opinion based on "false assumption"). Dr. Singer relies on the plainly incorrect assumption that he did not need to consider the potential confounding impact that the introduction of UFPA could have on the price lift his DiD model attributed to UPR. As discussed in Section IV.B.1.a, *supra*, experts relying on regression analyses must control for confounding variables. Dr. Singer's DiD model cannot.

Dr. Singer's DiD model has no way to control for whether any other variable drove his model's observed increase in CPMs (the price lift) or impressions following the implementation

of UPR. *See supra* Section IV.A. This includes any potential impact of Google's simultaneous launch of UFPA. Sessions Decl., Ex. 1 (Haider Rpt.) ¶ 197. Dr. Singer admits as much, Sharp-Wolfson Decl., (Singer Reply) ¶¶ 140-41, but he is adamant that he need not account for the potential impact of UFPA on his observed price lift thanks to a natural experiment that purportedly took place during a four-month period from May to August 2019 in which UPR operated in an open beta prior to the launch of UFPA, *id.* ¶ 11. Dr. Singer claims that during these four months, he observed "CPMs through Open Bidding began rising concurrently with Google's introduction of UPR as an open beta, months before it introduced it in general availability along with the unified first price auction." *Id.*; *see also* Sessions Decl., Ex. 3 (Singer Dep.) 51:2-18 (opining that the observed increases seen during UPR's open beta period "must" be coming from the implementation of UPR in beta form and not the introduction of UFPA "because we see these effects in May, and UFPA is not implemented until September"). Dr. Singer claims that this evinces that any potential impact UFPA could have is irrelevant. Sharp-Wolfson Decl., Ex. 4 (Singer Reply) ¶ 11. Dr. Singer, however, is wrong.

UPR enjoyed no such four-month period apart from UFPA. As described above, Google introduced an open beta for UPR in May 2019, a beta for UFPA in June 2019, and fully launched both in September 2019. *See* Ex. 31 (GOOG-AT-MDL-019740145). Therefore, Dr. Singer has no meaningful period during which to observe any purported impact of UPR free from any influence of UFPA and thus has no basis to assume that UFPA would not have a confounding effect.

Dr. Singer attempts to undermine this overlap between the beta periods by pointing to the fact that the UFPA beta was a tiered roll-out, with 1 percent of publishers being diverted to UFPA in early June, 5 percent being diverted in late June, and 10 percent being diverted in late July.

Sessions Decl., Ex. 3 (Singer Dep.) 54:8-25. But Dr. Singer did no analysis to measure the extent of publishers' participation in the UPR open beta or how that compared to the scale of publishers diverted to the UFPA beta. *Id.* 40:2-44:22, 50:18-52:24, 54:4-55:10. He does not know if 1 percent of publishers participated in the UPR open beta in May, June, July, or even August. *Id.* 55:1-4. This renders Dr. Singer's Direct Method unreliable and incapable of demonstrating antitrust impact and damages. *See, e.g.*, *Amorgianos*, 303 F.3d at 268-269; *Forte*, 675 F. App'x at 24.

b) Dr. Singer built his Direct Model to fit his desired outcome.

In addition to the failure to disaggregate the impact of UFPA, Dr. Singer's revised Direct Method is also unreliable because he reverse engineers the model to result in his desired outcome. The Direct Method Dr. Singer presents in his reply report bears little resemblance to the Direct Method of his initial report; Dr. Singer changes, *inter alia*, the data, the theory of harm, a key data field, and the dates of his intervention periods. *See supra* Section IV.A at 24-26. These results-oriented changes betray the reliability of his methodology.

Of course, Dr. Singer's decision to use the more granular AdX data is unsurprising. As described above, the dataset Dr. Singer used in his first DiD model did not allow him to isolate the purported impact and damages to advertisers using Google Ads. *See supra* Sections IV.A at 24-25, IV.B.2 at 33-34. But by replacing the original data set with the more granular set, his original DiD model can **not** find an overcharge or damages using the same methodology. So, Dr. Singer changed other inputs to change his outcome.

In particular, Dr. Singer changed his control and treatment groups between his first and second report. In his initial report, Open Bidding was the treatment group (and AdX was the control). Sharp-Wolfson Decl., Ex. 3 (Singer Op.) ¶¶ 9(1), 118-19. Dr. Singer found that prices on Open Bidding rose to AdX price levels as a result of UPR. *Id.* ¶ 122. He used this purported increase of prices on Open Bidding to determine the UPR-related price increase. *Id.* ¶ 125(v). But

using the more granular data, Dr. Singer's model no longer finds that Open Bidding CPMs increased significantly to AdX levels. Sharp-Wolfson Decl., Ex. 4 (Singer Reply) Tbls. 10-11, ¶ 178; Sessions Decl., Ex. 3 (Singer Dep.) 194:10-14. So Dr. Singer changed the structure of his model. He assigned as his treatment group Google Ads transactions on AdX to find that UPR caused the CPMs for Google Ads transactions to increase. Sharp-Wolfson Decl., Ex. 4 (Singer Reply) Tbl. 9, ¶¶ 177-178. Dr. Singer provides no coherent explanation for changing the most fundamental part of his model–the treatment and control groups–between his two reports.

Dr. Singer also changed the data field he uses to measure impressions from the "█████████" field to the "███████████████" field. Dr. Singer conceded that his finding of impact and damages relies on using this new "███████████████" field, and indeed, if Dr. Singer had used "█████████" instead of "███████████████," his new model would show no UPR-based CPM price lift, *i.e.*, would show no harm or damages. Sessions Decl., Ex. 3 (Singer Dep.) 348:17-20 (conceding that his model "is sensitive to whether or not you use ████████ or all ███████████ for your measure of price"); Sessions Decl., Ex. 8 (Haider Supp. Decl.) ¶ 6.

Dr. Singer had no reason for changing this field—other than, presumably, to produce a model that purports to show harm from UPR. Only after conferring with staff off the record during his deposition did Dr. Singer attempt to even rationalize this change. He remarked that he "noticed" that plaintiffs' expert in a different case used "███████████████." Sessions Decl., Ex. 3 (Singer Dep.) 353:10-15, 349:6-8. But Dr. Singer did not explain how, why, or through which methodology the other expert used the "███████████████" field. Dr. Singer also remarked that during a break in the deposition he learned "just now" that there was a purported "anomaly" in the "██████████" field for Open Bidding transactions in one year. Sessions Decl., Ex. 3 (Singer Dep.) 349:15-20. Despite this purported anomaly, Dr. Singer uses this same

"███████" field when conducting his own incidence (damages) analysis. *Id.* 199:15-19, 348:4-16; *see also supra* Section IV.A at 23.

Finally, Dr. Singer changes the beginning date of his before-UPR period for impression lift to January 2018 instead of January 2017. *Id.* 228:19-21. His finding of a Google Ads impression lift depends on this shorter period. Sessions Decl., Ex. 8 (Haider Supp. Decl.) ¶ 5 & Ex. 3. Had Dr. Singer included 2017, his finding of an impression lift would be overturned and his model would report no damages. *Id.* While Dr. Singer attempts to justify the change as conforming with the year in which Open Bidding entered general availability, Sharp-Wolfson Decl., Ex. 4 (Singer Reply) ¶ 183 n.192, this begs the question, why he did not choose this year for his before-UPR period in his original model. Dr. Singer's finding of damages in his new DiD model is also dependent upon his changes to the during-UPR end date for impression and CPM lift. Sessions Decl., Ex. 8 (Haider Supp. Decl.) ¶ 4 & Ex. 3.

Rather than build his new DiD model based on a reasoned and systematic application of the principles and methods to the facts of the case, Dr. Singer built his model to be outcome determinative and to conclude that the putative class was harmed and suffered damages as a result of UPR. Dr. Singer's opinions stemming from his Direct Model should be excluded, as courts regularly reject opinions that are the product of "reverse-engineering." *Mirena*, 169 F. Supp. 3d at 430-31 (excluding expert opinion that "consisted of reverse-engineering a theory to fit the desired outcome"); *see also Reed Constr. Data Inc. v. McGraw-Hill Cos.*, 49 F. Supp. 3d 385, 407 (S.D.N.Y. 2014) (excluding expert methodology "too manipulable to qualify as 'scientific' within the meaning of Rule 702" because "[s]cientific conclusions cannot depend upon the arbitrary choice of parameters"); *Bricklayers & Trowel Trades Int'l Pension Fund v. Credit Suisse Sec.*

(USA) LLC, 752 F.3d 82, 89-90, 92 (1st Cir. 2014) (affirming holding that regressions may not

"cherry-pick" time-frame or data points simply to make the ultimate conclusion stronger).

4. Dr. Singer's opinions as to classwide antitrust impact and damages are not relevant to the proposed class.

In addition to being unreliable, Dr. Singer's opinions as to classwide damages are also

irrelevant. Plaintiff proffers Dr. Singer's opinions to support a finding that classwide antitrust

injury and damages with respect to UPR are provable through common evidence. Mot. at 28. But

any opinions Dr. Singer has with respect to antitrust injury and damages do not concern the class

proposed by Plaintiff and therefore should be excluded as irrelevant.

Plaintiff seeks certification of a class consisting of "[a]ll persons and entities that placed a

display advertisement on a third-party website using Google Ads for the period January 1, 2016,

through the present." Mot. at 9. Dr. Singer makes clear that his opinions pertain to a narrower

group. Sessions Decl., Ex. 3 (Singer Dep.) 22:16-21. More specifically, Dr. Singer's opinions as

to impact and damages are limited to advertisers that purchased ad space using Google Ads *and*

transacted through AdX for a period beginning *after September 2019*. Sharp-Wolfson Decl., Ex.

3 (Singer Op.) ¶ 7; Sessions Decl., Ex. 3 (Singer Dep.) 22:16-21. His analysis and conclusions

therefore exclude over one-third of the proposed class period. Because Dr. Singer's opinions

cannot answer the question of whether *classwide* antitrust injury and damages are provable through

common evidence, they are not relevant to Plaintiff's class certification bid and should be

excluded. *See, e.g.*, *United States v. Ray*, 583 F. Supp. 3d 518, 539 (S.D.N.Y. 2022) (excluding

expert testimony where it was not relevant to the question at issue).

V.   CONCLUSION

For the foregoing reasons, Google respectfully requests that the Court grant Google's

Motion to Exclude the Expert Testimony of Dr. J. Douglas Zona and Dr. Hal Singer.

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Respectfully Submitted,

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